

Marking Scheme

P118-143(T1)

Total No. of Questions - 4

Total No. of Printed Pages: 01

G.R. No.	
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OCTOBER 2018 / IN - SEM (T1)

F. Y. M. TECH. (E&TC) (SEMESTER -I)

COURSE NAME: Biomedical Signal Processing

COURSE CODE: ETPA11183C

(PATTERN 2018)

Time: [1 Hour]

[Max. Marks: 20]

Q.1) i) Explain different types of Bio-medical signals and its sources of origin.
--Bioelectric, bioacoustics, bio-magnetic, bio-optic, bio-mechanical, bio-chemical, bio-impedance [any 6 (1mark each)]

ii) Explain how a bio-potential is generated in human body. With reference to cellular potential explain the following terms action potential, resting potential, repolarization and depolarization [4 marks]
--diagram 1 mark, potential generation process 1 mark, all terms 0.5 marks each

OR

Q.2) Draw and explain the lead configurations in ECG acquisition system [10 marks]

Diagram bipolar arrangement and explanation-4 marks

Diagram unipolar arrangement and explanation-4 marks

Diagram chest arrangement and explanation-2 marks

Q.3) i) Explain Skin contact Impedance and Motion artifacts with respect to Bio-signal acquisition [6marks]

Skin impedance explanation with diagram - 4 marks

Motion artifacts - 2 marks

ii) Explain how a bio-electrode is a transducers .Draw equivalent circuit of Electrode-electrolyte interface [4 marks]

Diagram -2 marks

Explanation -2 marks

OR

Q.4) List the various typed of electrodes used in ECG, EEG, EMG signal acquisition. Explain them in detail [10 marks]

Body surface/Skin surface (types with diagram 4 marks)

Macro electrodes (types with diagram 4 marks)

Needle Electrodes (with diagram 2 marks)